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ACTION DESCRIPTION MEMORANDUM

FOR CLOSURE OF

BUILDING 881 BENCH-SCALE CYANIDE TREATMENT UNIT

Authorization No. A01590

EG&G Rocky Flats, Inc.
Rocky Flats Plant

Operating Contractor for
U.S. Department of Energy

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FOR PUBLIC RELEASE

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1.0 PURPOSE

The purpose of this Action Description Memorandum (ADM) is to provide sufficient information to permit a reasonable determination of the level of NEPA documentation required to be in compliance with DOE Orders 5440.1C and AL 5440.1B, "Implementation of the National Environmental Policy Act (NEPA)."

2.0 PROPOSED ACTION

A bench-scale treatment process for conversion of cyanide to cyanate has occurred in the Building 881 laboratory (Room 131C) on a regular basis. Since cyanide is a listed hazardous waste, this waste treatment unit is regulated under the Resource Conservation and Recovery Act (RCRA). This unit is no longer in use and so is to be closed and decontaminated. The cyanide treatment unit consists of a 4-foot by 5-foot painted metal fume hood and exhaust system, three four-liter polyethylene bottles, a glass beaker and a chlorine-specific ion electrode. It is expected that all of the equipment associated with the treatment unit can be decontaminated by water washing and reused or disposed as a non-hazardous waste. If decontamination proves ineffective, the unit components will be packaged in appropriate containers and disposed at an approved facility.

2.1 Need for the Action

The action is required because the RCRA-regulated treatment unit is no longer being used. Closure (i.e., decontamination) of the unit under the provisions of RCRA is necessary so that the unit components can be disposed.

2.2 Location of the Action

The cyanide treatment unit is located in Room 131C in the southeast corner of the first floor of Building 881 at the Rocky Flats Plant (RFP). The Plant is located 16 miles northwest of downtown Denver. Decontamination will take place in Room 131C.

2.3 Description of Proposed Action

A bench-scale treatment unit for conversion of cyanide to cyanate has been in operation in the Building 881 laboratory (Room 131C) on a regular basis. The unit consists of a 4-foot by 5-foot painted metal fume hood and exhaust system, three four-liter polyethylene bottles, a glass beaker and a chlorine-specific ion electrode. After neutralization of the final inventory of cyanide waste, these elements will be decontaminated by a water-wash procedure. The cleaning agent will consist of potable water, calcium hypochlorite and sodium hydroxide. The equipment will be at least triple-rinsed with potable water. Rinsate from each rinse will be collected separately. The components will be judged clean when the cyanide concentration in the rinsate is smaller than the average concentration plus three standard deviations from the rinsate source. It is estimated that 15 gallons of cleaning effluent will result from the procedure. This material will be drained into the process waste system for treatment in Building 374.

After decontamination, the treatment unit components will be disposed as non-hazardous material. If decontamination is not successful, the components will be broken down by mechanical means for packaging for disposal as hazardous material. After size reduction, they will be packaged in boxes made of plastic-lined, triple-wall fiberboard. The boxes will be disposed at an approved facility.

2.4 Alternatives to the Proposed Action

2.4.1 No Action

The No Action alternative would result in the continued existence of contaminated, unused equipment in violation of RCRA; and therefore, this is not considered a reasonable alternative.

2.4.2 Closure Without Decontamination

It is possible to close the cyanide treatment unit without decontaminating it. Under this alternative, the entire volume of the treatment unit components would be hazardous waste. This alternative is expedient but would result in a greater volume of hazardous waste. Decontaminating the unit and treating the waste from decontamination will minimize the amount of hazardous material to be disposed.

2.4.3 Decontamination by Hydro-blasting

The selected means of decontamination is water-washing. An alternative means of decontamination, hydro-blasting, is similar to water-washing, but uses high-pressure jets to apply the cleaning agent. Water-washing was selected because it is adequate for the job, the agent is easier to control because it is not applied at high pressure, and because the hydro-blasting cleaning agent contains foaming agents that make the treatment of the waste from decontamination more difficult.

3.0 POTENTIAL HAZARDS AND CONTROLS

3.1 Construction Issues

The project involves no construction.

3.2 Operational Issues

3.2.1 Hazardous Wastes

The project will involve washing the fume hood, exhaust system, four-liter containers, beaker, and pH/ion meter with a cleaning agent. The cleaning agent and the rinsate may become contaminated with cyanide during the procedure. It is estimated that 15 gallons of potentially-contaminated cleaning effluent will be generated by the decontamination procedure. This material will be drained into the process waste system for treatment in Building 374. Building 374 does not discharge liquid wastes. All liquid waste sent to Building 374 is treated and recycled or evaporated.

Health and safety procedures used during decontamination will be identical to the procedures followed during operation of the treatment unit. Decontamination personnel (laboratory technicians and/or analytical chemists) will wear cotton coveralls and neoprene gloves, or other protective gear as prescribed by Health and Safety, during the procedure. Two people, one of whom will be a work-area supervisor, will be present at all times during decontamination.

3.2.2 Other Hazards

No hazards are anticipated as a consequence of this project other than those associated with routine waste disposal activities at RFP. Such activities include disassembly or cutting of equipment for volume reduction purposes and packing and loading of the waste for transportation and disposal.

3.3 Postulated Accidents

This project involves only hazards of a type and magnitude routinely encountered at RFP, and no additional safety analysis is required (per DOE Order 5481.1B "Safety Analysis and Review System"). Maximum credible accidents (MCAs) and risk to the public postulated in the Final Environmental Impact Statement for RFP (RFP/EIS-0064) are not impacted or significantly increased by this proposed action.

3.4 Impacts from Operational Effluents

The estimated 15 gallons of operational effluents generated by the decontamination procedure will be emptied into the process waste line leading to Building 374 where they will be treated. Building 374 does not discharge treated waste. All treated waste from Building 374 is either recycled at RFP or is evaporated. Consequently, decontamination of the cyanide treatment unit will not generate liquid effluent that would come under the purview of the Plant's National Pollution Discharge Elimination System permit. This fact, plus the very small amount of effluent generated by the project in the first place, will result in no impact to people or the environment from project-generated operational effluent.

3.5 Impacts From Operational Air Emissions

No significant air emissions are expected from the project. During the water-washing process, normal evaporation will occur. Room 131C is vented through the Building 881 filtered ventilation system. No emission of airborne hazardous materials is expected.

4.0 REGULATORY COMPLIANCE

The closure action is a regulatory compliance activity under RCRA. The closure will be implemented in full compliance with the RCRA, Occupational Safety and Health Administration rules, DOE orders and RFP procedures. There will be no release to the environment of hazardous or radioactive materials. There will be no effects to areas of concern under NEPA including wetlands; floodplains; historic, cultural or archaeological resources; and threatened or endangered species. In addition, no Native American lands or religious sites will be affected.

5.0 FISCAL AND SCHEDULE INFORMATION

The total estimated cost of the closure of the cyanide treatment unit is $8,800. These funds will be provided by the Environmental Restoration budget.

The action is expected to be completed within 90 days of initiation.